INEEL Intelligence

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A high-level monthly briefing on operations and activities at the Department of Energy's Idaho National Engineering and Environmental Laboratory – Home of Science and Engineering Solutions. Work at the lab supports the Department's business lines of environmental quality, energy resources, national security and science.

■ ENVIRONMENTAL QUALITY – International Team Probes New Treatment Technology

Scientists and engineers from the INEEL are teaming with peers from the Khlopin Radium Institute in Russia and Washington State University to research a safer, cheaper nuclear waste treatment technology. With an $800,000 three-year grant from the Department of Energy's Environmental Management Science Program, the international team will study and seek to improve the Universal Extraction, or UNEX process. UNEX is capable of removing multiple radioactive elements from high-level nuclear waste in one step. Using the UNEX process, scientists are also able to reduce the volume of high-level waste at least twenty fold, with a corresponding reduction in disposal costs. The multi-year project supports the INEEL's Advanced Waste Management Solutions Initiative.

■ SCIENCE – Making Metal Bend, But Not Break

INEEL researchers have achieved major success in high-strength metal processing. A research team was able to enhance the properties of tungsten heavy alloy using a technique called Equal Channel Angular Extrusion (ECAE). Tungsten is a very strong but brittle material, limiting the range of uses in industrial applications. The ECAE processing technique makes the tungsten significantly more pliable, opening up possibilities for much broader industrial use. This success also has very positive implications for other high-volume, commercial alloys of limited pliability and may finally enable commercial applications of ECAE for high-strength advanced metals and alloys.

■ ENERGY RESOURCES – INEEL Building Cited as an Energy Star

The INEEL's Engineering Research Office Building has been awarded the Environmental Protection Agency's Energy Star label for buildings. "By demonstrating energy performance in the top 25 percent of the office buildings market, while maintaining indoor environment requirements for air quality, thermal comfort and lighting performance, this building is entitled to wear the 2001 Energy Star Label, the mark of excellence in energy performance," said Bill Von Neida, Energy Star Label program manager for the EPA. Energy Star was introduced by the U.S. Environmental Protection Agency in 1992 as a voluntary labeling program to identify and promote energy-efficient products in order to reduce carbon dioxide emissions.

■ NATIONAL SECURITY – Fighting Bioterrorism

The same technology that helps deliver wholesome Idaho potatoes to family kitchens may be an effective tool against terrorism. INEEL researchers are teaming with a small Aberdeen, Idaho, business to experiment on destroying anthrax using ozone. O_3Co. has developed a patented process to deliver high concentrations of ozone to freshly harvested potatoes as they travel along conveyor belts before entering storage. INEEL researchers are testing this technology with harmless surrogates for anthrax spores. Preliminary results indicate that a 60-minute exposure to high levels of ozone kills the spores. This research along with four additional INEEL-developed technologies were highlighted by *Reader's Digest* on the Web site and in the February issue of the magazine.

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